WHAT IS CLAIMED IS:

1.   A scrambling code generating apparatus for generating a primary scrambling code and a compressed mode scrambling code for compressed mode transmission in a base station device, the apparatus comprising:

a first feedback linear shift register for generating an m-sequence from first predetermined initial bits;

a second feedback linear shift register for generating another m-sequence from second predetermined initial bits;

a first adder for generating the primary mode scrambling code by adding the outputs of the first and second linear feedback shift registers;

a second adder for adding the output of the second linear feedback register and an m-sequence one bit delayed from the output of the first linear feedback register; and

a third adder for adding the output of the second linear feedback register and an m-sequence two bits delayed from the output of the first linear feedback register,

wherein the compressed mode scrambling code is one of the outputs of the second and third adders.

2.   A scrambling code generating apparatus for generating a primary scrambling code and a compressed mode scrambling code for compressed mode transmission in a mobile station device, the apparatus comprising:

a first feedback linear shift register for generating an m-sequence from first predetermined initial bits;

a second feedback linear shift register for generating another m-sequence from second predetermined initial bits;

a first adder for generating the primary scrambling code by adding the outputs of the first and second linear feedback shift registers;

5   a second adder for adding the output of the second linear feedback register and an m-sequence one bit delayed from the output of the first linear feedback register; and

a third adder for adding the output of the second linear feedback register and an m-sequence two bits delayed from the output of the first linear feedback

10   register,

wherein the compressed mode scrambling code is one of the outputs of the second and third adders and the primary scrambling code and the compressed mode scrambling code are generated at a time.

15   3.   A scrambling code generating method for generating a primary scrambling code and a compressed mode scrambling code for compressed mode transmission in a base station device having a spreader for spreading an input data sequence with one of a plurality of OVSF codes and a scrambler for scrambling the spread data sequence with the primary scrambling code used as a default and

20   the compressed mode scrambling code, the method comprising the steps of:

generating a first m-sequence from first predetermined initial bits;

generating a second m-sequence from second predetermined initial bits;

generating the primary scrambling code for normal mode transmission by adding the first and second m-sequences;

generating a first compressed mode scrambling code by adding the second m-sequence and an m-sequence one bit delayed from the first m-sequence; and

generating a second compressed mode scrambling code by adding the second m-sequence and an m-sequence two bits delayed from the first m-sequence;

wherein the compressed mode scrambling code is one of the first and second compressed mode scrambling codes and is provided to the scrambler to scramble the spread data sequence.

4.   A scrambling code generating method for generating a primary scrambling code and a first and second compressed mode scrambling code for compressed mode transmission in a mobile station device having a descrambler for descrambling an input data sequence with the primary scrambling code used as a default and a despreader for despreading the descrambled data with one of a plurality of OVSF codes, the method comprising the steps of:

generating a first m-sequence from first predetermined initial bits;

generating a second m-sequence from second predetermined initial bits;

generating the primary scrambling code for normal mode transmission by adding the first and second m-sequences;

generating the first compressed mode scrambling code by adding the second m-sequence and an m-sequence one bit delayed from the first m-sequence; and

generating the second compressed mode scrambling code by adding the second m-sequence and an m-sequence two bits delayed from the first m-sequence;

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wherein one of the first and second compressed mode scrambling codes is provided to the descrambler to descramble the input data sequence.

5.   A scrambling code assigning method for compressed mode transmission during inter-frequency handoff in a base station having a scrambling code generating apparatus that can simultaneously generate a scrambling code to be used in a normal transmission mode and even or odd alternative scrambling codes to be used in a compressed transmission mode using an identical value in a mobile communication system, the method comprising the steps of:

determining whether an OVSF code with a half of the spreading factor (SF) of a current OVSF code is available;

determining whether the current OVSF code is even-numbered or odd-numbered if the OVSF code is not available; and

selecting the even alternative scrambling code if the current OVSF code is even-number.

6.   A scrambling code assigning method for compressed mode transmission during inter-frequency handoff in a mobile station having a scrambling code generating apparatus that can simultaneously generate a scrambling code to be used in a normal transmission mode and even or odd alternative scrambling codes to be used in a compressed transmission mode using an identical value in a mobile communication system, the method comprising the steps of:

determining whether a scrambling code assignment message designates a current scrambling code upon receipt of the scrambling code assignment message;

determining whether a current OVSF code is even-numbered or odd-numbered if the scrambling code assignment message code does not designate the current scrambling code; and

selecting the even alternative scrambling code if the current OVSF code

5   is even-number.

7.   The scrambling code generating apparatus of Claim 1, wherein the compressed mode scrambling code is selected for compressed mode transmission during inter-frequency handoff in the base station, wherein the

10   second adder generates an even alternative compressed mode scrambling code and the third adder generates an odd alternative compressed mode scrambling code to be used in the compressed transmission mode using an identical value in a mobile communication system, the compressed mode scrambling code used being selected by a selector, said selector:

15   determining whether an OVSF code with a half of the SF of a current OVSF code is available;

determining whether the current OVSF code is even-numbered or odd-numbered if the OVSF code is not available; and

selecting the even alternative scrambling code if the current OVSF code

20   is even-numbered and selecting the odd alternative scrambling code if the current OVSF code is odd-numbered.

8.   The scrambling code generating apparatus of Claim 2, wherein the compressed mode scrambling code is selected for compressed mode

25   transmission during inter-frequency handoff in the mobile station, wherein the second adder generates an even alternative compressed mode scrambling code

and the third adder generates an odd alternative compressed mode scrambling code to be used in the compressed transmission mode using an identical value in a mobile communication system, the compressed mode scrambling code used being selected by a selector, said selector:

5   determining whether a scrambling code assignment message designates a current scrambling code upon receipt of the scrambling code assignment message;

determining whether a current OVSF code is even-numbered or odd-numbered if the scrambling code assignment message code does not designate the current scrambling code; and

10   selecting the even alternative scrambling code if the current OVSF code is even-numbered and selecting the odd alternative scrambling code if the current OVSF code is odd-numbered.